WHAT IS CLAIMED IS:

1. A method for assembling an article of assembly, the article of assembly having a plurality of fastening locations including first and second fastening locations in spaced apart relation, comprising:

holding the article of assembly in a predetermined position;

providing a plurality of targets including at least a first target fixed relative to the article of assembly corresponding to the first fastening location of the article of assembly and a second target fixed relative to the article of assembly corresponding to the second fastening location, the second target having a different characteristic than the first target;

manually fastening fasteners into the article of assembly at the first and second fastening locations; and

sensing the first and second targets when said fastening is occurring at the first and second locations, respectively, and generating an electronic target output based upon said sensing that differentiates between the first and second targets thereby indicating when the fastening tool is in either of the first and second fastening locations.

2. The method of claim 1 further comprising conveying the article of assembly through an assembly station.

3. The method of claim 2 further comprising:

intermittently stopping the article of assembly at the assembly station for said fastening; and

monitoring the location of said fastening to ensure proper fastening of fasteners at the fastening locations.

4. The method of claim 3 further comprising:

maintaining the fixture at the assembly station and not releasing the fixture for further conveying out of the assembly station until the fastening tool has properly fastened fasteners into the article of assembly at the first and second fastening locations.

5. The method of claim 4, wherein the fasteners are threaded fasteners, further comprising:

measuring torque applied to the fasteners;

electronically indicating measured torque applied to the fasteners at at least one of the fastening locations;

determining the location of said fastening that corresponds to the indicating of measured torque;

electronically comparing measured torque with predetermined torque values for the at least one of the fastening locations; and

providing an output indicating whether the predetermined torque values for at least one of the fastening locations have been reached.

6. The method of claim 6, further comprising:

releasing the article of assembly and conveying the article of assembly out of the assembly station when the predetermined torque values have been reached.

7. The method of claim 1, further comprising:

monitoring a sequence of said fastening;

electronically comparing the monitored sequence with a predetermined sequence of fastening among the fastening locations; and

providing a sequence output indicating whether the predetermined sequence has been achieved.

8. The method of claim 2 further comprising transporting the articles of assembly through the assembly station substantially without stopping on a continuous basis.

9. The method of claim 8, further comprising:

providing at least two types of first and second targets, each different type corresponding to one of the articles of assembly;

generating said target output signal that differentiates between the at least two types of first and second targets; and

electronically determining the article of assembly subject to said fastening by differentiating between the different types of the first and second targets.

10. The method of claim 8 wherein the assembly station has an input location receiving fixtures from an upstream station and an output location delivering fixtures to a downstream station, wherein said fastening is conducted in a range between the input location and the output location, further comprising:

electronically sensing when articles of assembly are exiting the assembly station and providing a fixture position output indicating when fixtures have exited the assembly station through the output location;

electronically determining whether said fastening has been properly conducted on each article of assembly exiting the assembly station; and

outputting an electronic alarm signal when one of the articles of assembly has exited the assembly station without proper fastening at the first and second fastening locations.

11. The method of claim 10, further comprising temporarily stopping the conveying of the articles of assembly in response to the electronic alarm signal so corrective action may be performed on the article of assembly.

12. The method of claim 10, wherein the fasteners are threaded fasteners, wherein said proper fastening comprises:

measuring torque applied to the fasteners;

electronically indicating measured torque applied to the fasteners at at least one of the fastening locations;

determining the location of said fastening that corresponds to the indicating of measured torque;

electronically comparing measured torque with predetermined torque values for the at least one of the fastening locations; and

providing an output indicating whether the predetermined torque values for at least one of the fastening locations have been reached.

13. The method of claim 10 wherein said proper fastening comprises:

monitoring a sequence of said fastening;

electronically comparing the monitored sequence with a predetermined sequence of fastening among the first and second fastening locations; and

providing a sequence output indicating whether the predetermined sequence has been achieved.

14. The method of claim 10 further comprising:

assigning adjacent articles of assembly different types of the first and second targets for purposes of differentiation according to a predetermined fixture sequence;

determining the article of assembly subject to fastening operations based upon the predetermined sequence.

15. The method of claim 1 wherein said sensing is accomplished with a

machine vision camera and wherein the targets have different visual characteristics, further comprising electronically differentiating between the different visual characteristics contained in the electronic target output to determine the location of the fastening tool.

16. The method of claim 15 wherein the targets are selected from the group consisting of geometric shapes, colors and alphanumeric characters.

17. The method of claim 2 wherein said sensing is accomplished with a laser and laser sensing device, said fastening being accomplished with a fastening tool movable in a plane spaced from the article of assembly to selectively position the fastening tool at the fastening locations, the laser and laser sensing device being movable with the fastening tool in said plane, the targets comprising reflective material spaced at different distances perpendicular to said plane.

18. The method of 17 wherein the fastening tool plunges along a fastening axis perpendicular to said plane, the laser and laser sensing device remaining stationary during plunging of the fastening tool.

19. The method of claim 18 wherein the article assembly is carried by a conveyor, the fastening tool being movable horizontally relative to the conveyor, the laser and laser sensing device being restricted to horizontal movement along a horizontal axis along with the fastening tool, further comprising a reflective panel extending in the horizontal axis in reflective communication with the laser and laser sensing device with a reflective surface aligned at an oblique angle relative to said plane providing the targets.

20. The method of claim 1 wherein the article of assembly comprises an automotive seat comprised of at least two parts, the fasteners comprising threaded fasteners for fastening the at least two parts together.

21. The assembly system of claim 1 further comprising:
enabling the fastening tool when one of the targets is sensed; and
disabling the fastening tool when none of the targets are sensed.

22. A method for assembling an article of assembly, the article of assembly having a plurality of fastening locations including first and second fastening locations in spaced apart relation, comprising:

holding the article of assembly in a predetermined position;

manually fastening fasteners into the article of assembly using a fastening tool at the first and second fastening locations according to a predetermined fastening sequence;

sensing the position of the fastening tool;

electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations; and

providing a sequence output indicating whether the predetermined sequence has been achieved.

23. The method of claim 22, wherein the article of assembly comprises a vehicle seat.

24. The method of claim 22, further comprising enabling the fastening tool when the fastening tool is at one of the first and second locations and a predetermined fastening sequence is followed, and disabling the fastening tool when the predetermined fastening sequence is not followed.

25. The method of claim 24, further comprising disabling the fastening tool when not at a fastening location.

26. The method of claim 24, further comprising monitoring torque applied during said manual fastening, providing an electronic torque output indicating whether at least one predetermined torque value has been reached.

27. The method of claim 26, enabling the fastening tool when the fastening tool is at one of the first and second locations and a predetermined fastening sequence is followed, and disabling the fastening tool when the predetermined fastening sequence is not followed.

28. The method of claim 27, further comprising disabling the fastening tool when a predetermined torque value is not reached for one of the fastening locations in the predetermined sequence and the fastening tool is at a fastening location other than said one of the fastening locations.

29. The method of claim 22, wherein said sensing comprises sensing targets including first and second targets arranged in relation to the first and second fastening

locations, the first and second targets being sensed when said fastening is occurring at the first and second fastening locations, respectively; and generating an electronic target output based upon said sensing that differentiates between the first and second targets thereby indicating when the fastening tool is in either of the first and second fastening locations.

30. The method of claim 29, wherein said sensing is conducted with one of a machine vision camera and a laser sensing device.